1,4-Dioxane Sampling Update
Brookhaven National Laboratory
Community Advisory Council
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U.S. DEPARTMENT OF ENERGY | Office of Science

1,4-Dioxane Sampling Update

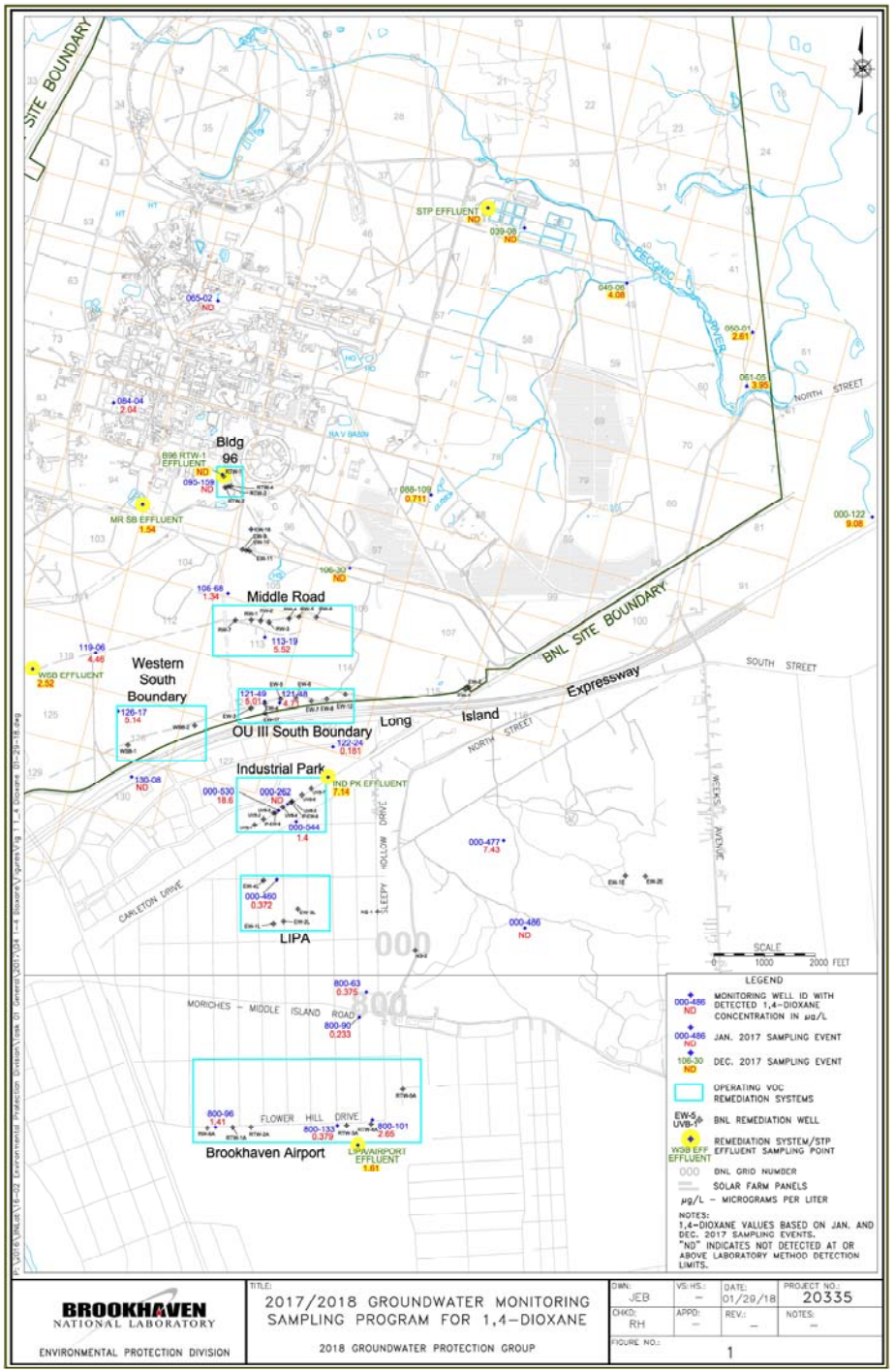
- 1,4-Dioxane is a volatile organic compound that has been widely used as a stabilizer for 1,1,1-trichloroethane (TCA)
- No federal maximum contaminant level (MCL) or specific New York State standard has been established for 1,4-dioxane in drinking water. Currently considered an unspecified organic contaminant for which the standard is 50 µg/L
- In 2016, NYSDEC/NYSDOH formally suggested that BNL analyze for 1,4-dioxane within site plume core wells that have or had TCA
- Briefed CAC in March 2017 on groundwater samples collected in January 2017
  - Detected 1,4-dioxane in 17 of 22 on and off-site monitoring wells sampled
  - Concentrations ranged from 0.18 µg/L to 18.6 µg/L
  - Samples were analyzed via EPA Method 522 (low detection limit)
  - Data was included in the 2016 Groundwater Status Report

1,4-Dioxane Sampling Update

- In response to a September 2017 request by the Suffolk County Department of Health Services (SCDHS), BNL obtained additional baseline data on the distribution of 1,4-dioxane by sampling seven additional groundwater monitoring wells and the effluent from 5 currently operating groundwater treatment systems, and the Sewage Treatment Plant
- Samples were collected in early December 2017 from 13 locations

1,4-Dioxane Sampling Results

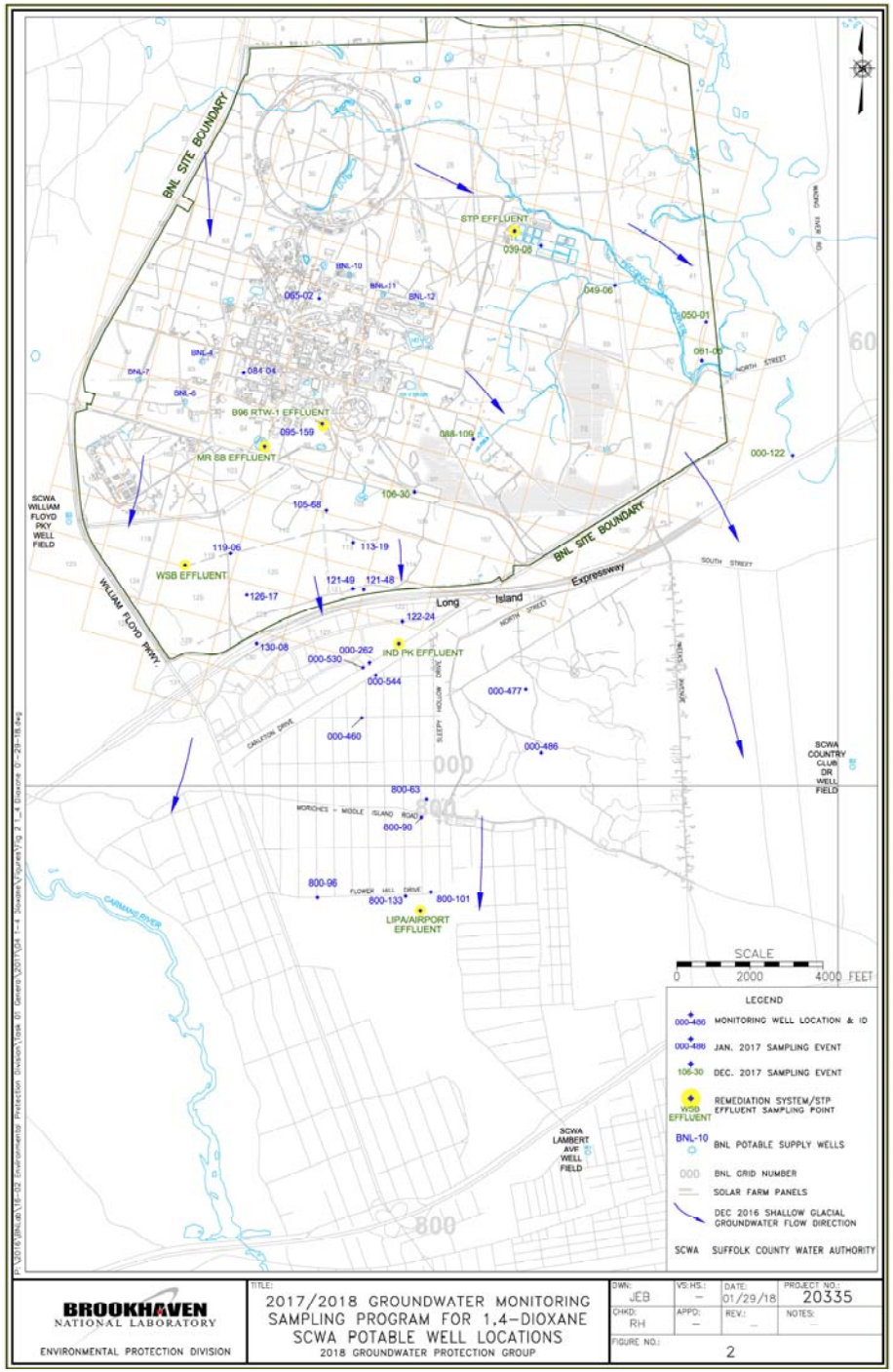
- Was not detected in Sewage Treatment Plant effluent sample
- Five of seven monitoring wells had detections up to 9.08 µg/L
- Four of five groundwater treatment system effluent samples had detections up to 7.14 µg/L
- All concentrations were below the current NYS standard for non-specific organic contaminants of 50 µg/L



1,4-Dioxane Sampling Update

- Drinking Water Supply Well Testing:
  - BNL's drinking water supply wells were tested by SCDHS from 2015 through 2017 and no 1,4-dioxane was detected
  - SCWA testing of drinking water supply wells in the vicinity of the Lab also did not detect 1,4-dioxane
- The new monitoring results were reviewed with the regulators on February 1st
  - Results will be included in the 2017 Groundwater Status Report
- BNL will continue to monitor regulatory status on this emerging contaminant of concern, and keep the CAC informed

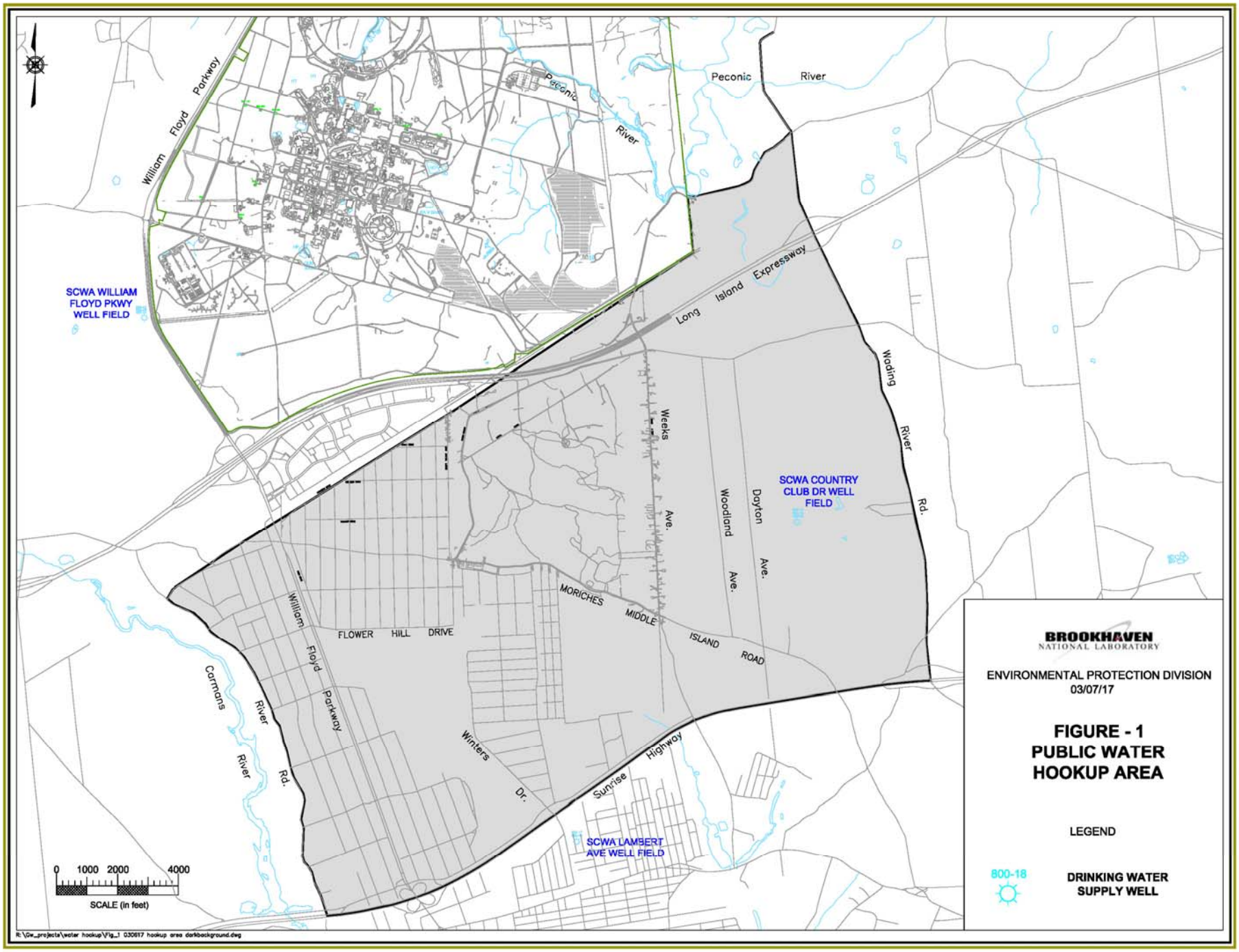
1,4-Dioxane Sampling Results



Backup Slides

January and December 2017 1,4-Dioxane Sampling Data

Well ID	Project	Date Sampled	Depth (ft bls)	1,4-Dioxane (µg/L)
065-02	OU III Central	1/19/2017	60	ND
084-04	OU III Central	1/19/2017	150	2.04
095-159	OU III Building 96	1/19/2017	50	ND
105-68	OU III Middle Road	1/20/2017	205	1.34
113-19	OU III Middle Road	1/20/2017	230	5.52
121-48	OU III South Boundary	1/20/2017	228	4.71
121-49	OU III South Boundary	1/20/2017	215	5.01
122-24	OU III Industrial Park East	1/19/2017	275.5	0.181 J
119-06	OU III Western South Boundary (WSB)	1/20/2017	130	4.46
126-17	OU III Western South Boundary	1/20/2017	140	5.14
130-08	OU III Western South Boundary	1/19/2017	150	ND
000-477	OU III North Street East	1/18/2017	170	7.43
000-486	OU III North Street East	1/18/2017	165	ND
000-262	OU III Industrial Park	1/19/2017	182.5	ND
000-530	OU III Industrial Park	1/19/2017	210	18.6
000-544	OU III Industrial Park	1/19/2017	230	1.4
000-460	OU III LIPA	1/18/2017	300	0.372
800-63	OU III North Street	1/18/2017	206	0.375
800-101	OU III Airport	1/18/2017	280	2.65
800-133	OU III Airport	1/18/2017	225	0.379
800-90	OU III Airport	1/18/2017	255	0.233
800-96	OU III Airport	1/18/2017	189	1.41
039-08	Downgradient of STP Sand Filters	12/5/2017	22	ND
049-06	OU V	12/5/2017	180	4.08
050-01	OU V	12/5/2017	215	2.61
061-05	OU V	12/5/2017	200	3.95
000-122	OU V	12/5/2017	250	9.08
088-109	Current Landfill	12/5/2017	13.5	0.711
106-30	Former Landfill	12/5/2017	36.5	ND
NA	Sewage Treatment Plant (STP) Effluent	12/6/2017	NA	ND
NA	OU III MR/SB Effluent	12/6/2017	NA	1.54
NA	OU III Building 96 RTW-1 Effluent	12/6/2017	NA	ND
NA	OU III WSB Effluent	12/5/2017	NA	2.52
NA	OU III Industrial Park EW-8/9 Effluent	12/5/2017	NA	7.14
NA	OU III LIPA/Airport Effluent	1/17/2018	NA	1.61
µg/L	Micrograms per liter.			
ft bls	Feet below land surface.			
ND	Not detected, <0.2 µg/L.			


William Floyd Parkway
Peconic River
Peconic River
SCWA WILLIAM FLOYD PKWY WELL FIELD
Long Island Expressway
Wading River Rd.
Weeks Ave.
Woodland Ave.
Dayton Ave.
SCWA COUNTRY CLUB DR WELL FIELD
MORICHES MIDDLE ISLAND ROAD
FLOWER HILL DRIVE
William Floyd Parkway
Carmans River
Carmans River Rd.
Winters Dr.
Sunrise Highway
SCWA LAMBERT AVE WELL FIELD
0 1000 2000 4000
SCALE (in feet)
R:\Gw_projects\water hookup\Fig_1 030617 hookup area darkbackground.dwg
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION
03/07/17
FIGURE - 1
PUBLIC WATER
HOOKUP AREA
LEGEND
800-18
DRINKING WATER SUPPLY WELL